Date: Sat, 13 Aug 94 01:28:45 PDT

From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>

Errors-To: Info-Hams-Errors@UCSD.Edu

Reply-To: Info-Hams@UCSD.Edu

Precedence: Bulk

Subject: Info-Hams Digest V94 #908

To: Info-Hams

Info-Hams Digest Sat, 13 Aug 94 Volume 94 : Issue 908

Today's Topics:

ARLP033 Propagation de KT7H Bearcat 101

CHU Digital Transmission Format?

Daily Summary of Solar Geophysical Activity for 11 August
Interference to X-10 home automation?

Mobile radio in Acura Integra?

NEED! Technics Manual/Circuit RS-B48R

Qs on no code FCC license and Hardware

RF hazards

TNC construction article
VE8KM 6M beacon
VK2WI Weekly News, 7th August, 1994
W2NSD

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu> Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu> Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available (by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text herein consists of personal comments and does not represent the official policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 12 Aug 1994 18:41:33 MDT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!

usc!nic-nac.CSU.net!charnel.ecst.csuchico.edu!psgrain!nntp.cs.ubc.ca!alberta!

ve6mgs!usenet@network.ucsd.edu

Subject: ARLP033 Propagation de KT7H

To: info-hams@ucsd.edu

SB PROP @ ARL \$ARLP033 ARLP033 Propagation de KT7H ZCZC AP47 QST de W1AW Propagation Forecast Bulletin 33 ARLP033 >From Tad Cook, KT7H Seattle, WA August 12, 1994 To all radio amateurs

SB PROP ARL ARLP033 ARLP033 Propagation de KT7H

Solar activity is still low. Don't expect much improvement over the next few years. We can expect a slight improvement in the short term over the solar flux values in the mid seventies that we have had lately. Around August 21 through 24 the flux is expected to climb up to around 90.

Recently geomagnetic disturbances have been low, but currently we are experiencing slightly disturbed conditions from a recurring coronal hole. This may continue for a few more days.

Sunspot Numbers from August 4 through 10 were 21, 27, 29, 18, 18 and 33, with a mean of 23.4. 10.7 cm flux was 75.2, 75.7, 75.3, 75.8, 73.8, 73.5 and 77.6, with a mean of 75.3.

The path projection for this week is from the center of the United States to Central Europe.

80 meters should be open from 0200z to 0430z, and 40 meters from 0030z to 0530z. 30 meters looks good from 0500z to 0700z, and again from 2230z to 0130z. 20 meters should be open most days from 1830z to 2330z, with the best time around 2130z or 2200z. The bands above 20 meters do not look good at this time.

NNNN /EX

Date: 8 Aug 1994 01:44:04 GMT

From: ankh.iia.org!ralph.vnet.net!raykale@uunet.uu.net

Subject: Bearcat 101
To: info-hams@ucsd.edu

Robert E Langley (relanglo@sacam.OREN.ORTN.EDU) wrote:

: : This radio is about twenty years old or more. It has 18 channels and an

: : LED light for each channel along with a three position switch under

: each light. In the bottom right are two switches for programming.

: : Does anyone remember this radio and how to program it?

: Thanks

: relangl@sacam.oren.ortn.edu

Bob,

Is this a xtal operated radio?

Ray

Date: 12 Aug 1994 20:50:07 GMT

From: newsgate.watson.ibm.com!watnews.watson.ibm.com!usenet@uunet.uu.net

Subject: CHU Digital Transmission Format?

To: info-hams@ucsd.edu

In <CuEIOF.F10@cs.dal.ca>, aa770@cfn.cs.dal.ca (Robert Harpelle) writes:

>Robert G. Schaffrath (RGS@gfimda.UUCP) wrote:

>: I read here recently that CHU in Canada digitally broadcasts the time between

>: the 30 and 40 second marks. Does anyone on here know the format of the data? I

>: recalled that the encoding is Bell 103 (300 baud) so I tried hooking up an old

Date: Fri, 12 Aug 1994 02:31:42 MDT

From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!nic-nac.CSU.net! charnel.ecst.csuchico.edu!yeshua.marcam.com!zip.eecs.umich.edu! newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!ve6mgs!usenet@@. Subject: Daily Summary of Solar Geophysical Activity for 11 August

To: info-hams@ucsd.edu

DAILY SUMMARY OF SOLAR GEOPHYSICAL ACTIVITY

11 AUGUST, 1994

(Based In-Part On SESC Observational Data)

SOLAR AND GEOPHYSICAL ACTIVITY INDICES FOR 11 AUGUST, 1994

!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 223, 08/11/94 10.7 FLUX=076.7 90-AVG=079 SSN=037 BKI=4433 3323 BAI=017 BGND-XRAY=A3.0 FLU1=5.2E+05 FLU10=1.4E+04 PKI=3333 3333 PAI=016 BOU-DEV=046,048,026,028,038,035,011,021 DEV-AVG=031 NT SWF=00:000 XRAY-MAX= B1.2 @ 0123UT XRAY-MIN= A2.5 @ 1033UT XRAY-AVG= A4.3 NEUTN-MAX= +001% @ 1300UT NEUTN-MIN= -003% @ 2110UT NEUTN-AVG= -0.7% PCA-MAX= +0.3DB @ 1520UT PCA-MIN= -0.1DB @ 2340UT PCA-AVG=+0.0DBBOUTF-MAX=55232NT @ 1223UT BOUTF-MIN=55191NT @ 1701UT BOUTF-AVG=55216NT GOES7-MAX=P:+000NT@ 0000UT GOES7-MIN=N:+000NT@ 0000UT G7-AVG=+066,+000,+000 GOES6-MAX=P:+125NT@ 1947UT GOES6-MIN=N:-031NT@ 0023UT G6-AVG=+094,+031,-014 FLUXFCST=STD:077,077,077;SESC:077,077,077 BAI/PAI-FCST=020,015,015/020,015,015 KFCST=3335 4323 4343 2132 27DAY-AP=017,026 27DAY-KP=4332 3334 5435 4333 WARNINGS= ALERTS= !!END-DATA!!

NOTE: The Effective Sunspot Number for 10 AUG 94 was 26.7.

The Full Kp Indices for 10 AUG 94 are: 3- 2- 3+ 2- 4- 40 40 3
The 3-Hr Ap Indices for 10 AUG 94 are: 11 7 18 7 25 27 29 11

Greater than 2 MeV Electron Fluence for 11 AUG is: 4.6E+06

SYNOPSIS OF ACTIVITY

Solar activity continued very low. Region 7762 (N04W51) showed trailer decay. A small H-class spot rotated around the east limb and was numbered as new Region 7764 (S05E68).

Solar activity forecast: solar activity should continue at the very low level. There is a slight probability of a C-class flare from either Region 7762 or 7764.

The geomagnetic field was mostly unsettled to active. Some high latitude sites experienced brief periods of minor storming in the 1200-1500Z reporting period. Energetic electron fluxes began to increase near 1300Z and reached moderate levels at the end of the period.

Geophysical activity forecast: the geomagnetic field should be unsettled to active on 12 Aug. Mostly unsettled conditions are forecast for 13-14 Aug but isolated active intervals are likely during that time. Energetic electron fluxes at geosynchronous orbit could reach high levels on 12 Aug.

Event probabilities 12 aug-14 aug

Class M 01/01/01 Class X 01/01/01 Proton 01/01/01 PCAF Green

Geomagnetic activity probabilities 12 aug-14 aug

Α.	A[bbiM	Latitudes
л.	LITUATE	Latitudes

Active 40/35/30 Minor Storm 20/15/10 Major-Severe Storm 10/05/01

B. High Latitudes

Active 45/40/35 Minor Storm 20/20/15 Major-Severe Storm 10/10/05

HF propagation conditions were unsettled during the first half of the UTC day. Transauroral night-sector circuits experienced periods of minor signal degradation, but most other regions were near-normal. By the end of the UTC day, most regions, including night-sector transauroral circuits were near-normal. Slight signal degradation can still be periodically expected over the night-sector high-latitude regions over the next 24 to 48 hours. Most other regions should continue to see near-normal propagation.

COPIES OF JOINT USAF/NOAA SESC SOLAR GEOPHYSICAL REPORTS

REGIONS WITH SUNSPOTS. LOCATIONS VALID AT 11/2400Z AUGUST

NMBR LOCATION LO AREA Z LL NN MAG TYPE 7762 N04W52 114 0100 CSO 06 005 BETA 7763 S12W31 093 0000 AXX 01 001 ALPHA 7764 S05E67 355 0060 HSX 02 001 ALPHA REGIONS DUE TO RETURN 12 AUGUST TO 14 AUGUST NMBR LAT LO

NONE

LISTING OF SOLAR ENERGETIC EVENTS FOR 11 AUGUST, 1994

BEGIN MAX END RGN LOC XRAY OP 245MHZ 10CM SWEEP SWF NO EVENTS OBSERVED

POSSIBLE CORONAL MASS EJECTION EVENTS FOR 11 AUGUST, 1994

ISOLATED HOLES AND POLAR EXTENSIONS

EAST SOUTH WEST NORTH CAR TYPE POL AREA OBSN

NO DATA AVAILABLE FOR ANALYSIS

SUMMARY OF FLARE EVENTS FOR THE PREVIOUS UTC DAY

Date Begin Max End Xray Op Region Locn 2695 MHz 8800 MHz 15.4 GHz

10 Aug: 1214 1224 1239 B1.5 2140 2144 2147 B1.1

REGION FLARE STATISTICS FOR THE PREVIOUS UTC DAY

Total Events: 002 optical and x-ray.

EVENTS WITH SWEEPS AND/OR OPTICAL PHENOMENA FOR THE LAST UTC DAY

Date Begin Max End Xray Op Region Locn Sweeps/Optical Observations

NO EVENTS OBSERVED.

NOTES:

All times are in Universal Time (UT). Characters preceding begin, max, and end times are defined as: B = Before, U = Uncertain, A = After. All times associated with x-ray flares (ex. flares which produce associated x-ray bursts) refer to the begin, max, and end times of the x-rays. Flares which are not associated with x-ray signatures use the optical observations to determine the begin, max, and end times.

Acronyms used to identify sweeps and optical phenomena include:

Continuum = Continuum Radio Event

Loop = Loop Prominence System,

Spray = Limb Spray,

Surge = Bright Limb Surge,

EPL = Eruptive Prominence on the Limb.

** End of Daily Report **

Date: Fri, 12 Aug 1994 17:07:37 GMT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!

vixen.cso.uiuc.edu!usenet.ucs.indiana.edu!indyvax.iupui.edu!

jsissom.dmed.iupui.edu!JAY@network.ucsd.edu
Subject: Interference to X-10 home automation?

To: info-hams@ucsd.edu

I haven't had any X-10 problems with 2M or 440 transmissions, but when my laser printer prints, a light in the next bedroom turns on. I haven't figured out why yet.

Jay KA90KT

>I suspect your friend may have other problems causing the X-10 to trigger,>like high RF levels do to antenna problems. I suspect he may also be>having RFI problems with other devices in his house.

>I run up to a KW on 40 through 10 and have not had a problem with RF >triggering the X-10s. Touch lamps are another story. Those darn things >tolerate very little RF. I have had some success in keeping RF out of >the lamps by wrapping the power cord in a toroid core (Radio Shack #273-104).

>Mike Suhar WB8GXB
>mds@meaddata.com

Date: Thu, 11 Aug 1994 00:58:48 GMT

From: ihnp4.ucsd.edu!swrinde!sdd.hp.com!col.hp.com!news.dtc.hp.com!

hpscit.sc.hp.com!icon!greg@network.ucsd.edu Subject: Mobile radio in Acura Integra?

To: info-hams@ucsd.edu

Well, this general topic seems to be the rage right now, so I'll ask my \$.02.

I am planning on installing a mobile rig in a '94 Acura Integra GS-R. The

plan is to use a Kenwood 733, mounted under the driver seat, with the remote display on the dash below the radio. Heavy wires (12ga?) go direct to the battery, though I haven't found a good route yet. Each has a fuse, and the positive goes through a relay tied to the ignition so that the radio goes off when the engine is turned off, maybe with an override switch. I know that Gary and others tell me to drill the hole, but I just can't do that, so for an antenna I plan to use a Larsen dual-band glass mount on the side window on the driver side. Mount the antenna as high as possible in the window, yet still have the top of the antenna below the garage door - probably puts the glass mounting thingy about in the middle of the window. Oh, and I probably need to have the radio itself grounded where it's mounted, I expect to one of the bolts on the seat's mounting rails.

I know this plan has compromises: antenna on the side of the car is not as good as the middle (height restriction), on-the-glass antenna not as good as through-the-metal, etc.

BUT - is there anything glaring that I have forgotten? I didn't see any mention of warranty problems, and the dealer didn't know of any either, although I didn't ask *everyone* about it, or have them sign anything. I have read reports of problems of ignition noise, so perhaps I would need to do some bypassing and/or ferrite-ing of the power wires. My fingers are crossed, however, since the reports were for the 89-90 cars which were known for having "igniter" problems.

Did I miss anything?

Thanks,

Greg KD6KGW

Date: 12 Aug 94 19:00:18 GMT

From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!EU.net!Germany.EU.net!nntp.gmd.de!dearn!barilvm!

vms.huji.ac.il!gorski@network.ucsd.edu

Subject: NEED! Technics Manual/Circuit RS-B48R

To: info-hams@ucsd.edu

The following is being sent at the request of Avi 4X6UA.

++++++++++++++

I need a circuit diagram or preferably a service manual for a TECHNICS model RS-B48R tape deck or similar. The manufacturer no longer holds this information. I will be happy to defray any costs for photocopying, mailing, etc.,. Please reply to the sender of this message, and include an address

to which I can mail a check for your expenses.

Thanks very much.

Avi Esterson, 4X6UA

+++++++++++++

Any answers can be sent directly to him via the call-book or I will be happy to relay any messages to him.

Thanks for any help anyone can give him.

73's and Shalom from Jerusalem

Date: Thu, 11 Aug 1994 14:17:59 -0700

From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!swrinde!elroy.jpl.nasa.gov!lll-

winken.llnl.gov!apple.com!goofy-2.apple.com!user@network.ucsd.edu

Subject: Qs on no code FCC license and Hardware

To: info-hams@ucsd.edu

I know this question has probably been ask a hundred times before but I≈am new to amateur radio, and internet, and I≈want to know exactly what frequencies you can operate on with the no code license. Such as 2m, 220mhz, 440mhz 6m, etc..? Also, what brand(s) of handheld and desktop radios are the popular ones. I want something that is going to be reliable and have user friendly features. One more thing, I need recommendations on amateur radio and satellite magazines.

Thanks in advance.

Date: Fri, 12 Aug 1994 20:18:02 GMT

From: ihnp4.ucsd.edu!news.cerf.net!gopher.sdsc.edu!news.tc.cornell.edu!

travelers.mail.cornell.edu!news.kei.com!world!news.bu.edu!gw1.att.com!nntpa!not-

for-mail@network.ucsd.edu

Subject: RF hazards To: info-hams@ucsd.edu

jfilner (jfilner@reed.edu) wrote:
: twp77@isuvax.iastate.edu writes:

: effects of RF. The speaker on the reciever at least is going to

Did you mean magnetic waves at audio frequencies produced by the voice coil?

Date: Sat, 13 Aug 94 01:45:18 CST

From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!cs.utexas.edu!

convex!news.duke.edu!news-feed-1.peachnet.edu!umn.edu!newsdist.tc.umn.edu!

msus1.msus.edu!msus1@ihnp4.ucsd.edu Subject: TNC construction article

To: info-hams@ucsd.edu

Does anybody know of a construction article for a "general purpose" TNC?

These are my reguirements:

- 1) Standard serial connection. (I have 4 different computers and would like to be able to connect to all).
- 2) An internal processor of some type to minimize the overhead on the computer.

If these are too strict, please let me know. Thanks.

Bill Soranno -- KB0NKX 7 Fairfax Winona, MN 55987 507/452-3789

Date: Thu, 11 Aug 1994 14:49:21 -0800

From: news.sprintlink.net!news.world.net!news.teleport.com!ip-cb.teleport.com!

user@uunet.uu.net

Subject: VE8KM 6M beacon To: info-hams@ucsd.edu

As many 6M ops know, the evening of 13 July was a good openning for US and VE 6m stations. Here in CN85 I noticed a signal around 50.004 beaming 30 degrees at 0515Z (14 July) which I thought was a European TV signal. It was a steady carrier, with some warble, running about S-5. About 0600Z finally caught the id, VE8KM (DP79.) This beacon id's once every 5 minutes with " de VE8KM." This beacon was up to S-7 and did not start to go into the noise until past 0700Z. Myself and KE7CX gave a few calls towards Europe on 50.110 after 0500Z. I would be interested to hear if any European 6M ops have heard this beacon this summer. TNX.

de Dave, N7DB (CN85)

- -

Dave Bernhardt dbcntcas@teleport.com

Date: 13 Aug 1994 17:51:03 +1000

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!agate!msuinfo!

harbinger.cc.monash.edu.au!yarrina.connect.com.au!warrane.connect.com.au!

kralizec.zeta.org.au!not-for-mail@network.ucsd.edu

Subject: VK2WI Weekly News, 7th August, 1994

To: info-hams@ucsd.edu

Dave VK2KFU wrote (quoting Mike Corbin VK2PFQ):

> I inform you of these things so that you can be aware of the sort

> of rubbish the "Council" is forced to put up with.

I'm glad that Uncle Mike has finally woken up to Harrison & Co., and is starting to speak out. Perhaps now, the mushrooms out in the country areas will start to realise what's been going on for the last year or so.

- > ...There is a
- > light at the end of the tunnel,...

The light shining out of Roger Harrison's ass, I expect (though I hope not)

...which leads me to what was stated in the letter from the Divisional Barrister.

:

> (i) Provide for a fresh election for all Council positions. (that's

> pretty straight forward)

Just what theConcerned Amateurs group was seeking after certain people cheated their way onto "Council" in April (thereby causing all this legal mess.) No names of course, because that would be defamatory :-)

>(ii) Resolve that the newly elected Council NOT be required to retire > until the Annual General Meeting in 1996.

Fine, as long as none of the above-mentioned people get in again.

Maybe then we can get back to the hobby, and those shortwave listeners (with callsigns) who've caused this mess will find some other way to occupy themselves..

Date: Thu, 11 Aug 1994 09:41:49

From: ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!charnel.ecst.csuchico.edu!yeshua.marcam.com!insosf1.infonet.net!news.i-link.com!news.sprintlink.net!

indirect.com!s146.phxslip.indirect.@ihnp4.ucsd.edu

Subject: W2NSD

To: info-hams@ucsd.edu

Just a quick reminder that Wayne Green, W2NSD, will be the special guest on the Ham Radio & More show this Sunday, 8/14/94. Wayne will discuss his background, his opinions, and more. The show can be heard on the Talk America Network in over 20 cities and via satellite on Spacenet 3, Transponder 9, 6.8 audio. It airs live at 6:00pm EST. Call 602-241-1510 for more information.

If you cannot hear the show, but want to ask Wayne a question, call our listener call-in line at 1-800-298-talk around 6:00pm EST and you can be put on hold to hear the show until it's time to ask your question of Wayne. He'll also be on the local show the following hour at 1-800-293-kfnn. 73, Len, KB7LPW

Date: (null)
From: (null)

Time and Frequency Station CHU (Canada)

Information provided by Nick Sayer (mrapple@quack.sac.ca.us)
CHU is a radio station in Canada that broadcasts time of day information sort of like WWV. CHU transmits on 3330 kHz, 7335 kHz, and 14670 kHz using AM compatable single-sideband full carrier modulation. Between 31 and 39 seconds (inclusive) past the minute, CHU transmits a computer readable timecode. This timecode includes time of day UTC, day of year (1-366), Gregorian year, leap second warning, DUT (the difference between UTC and UT1, which is an astronomical timescale. The difference is an integral number of tenths of a second between -.9 and +.9. If the difference exceeds .7, they schedule a leap second), and a Canadian daylight time indicator.

The datastream is in the form of an AFSK datastream. The frequencies are compatable with the Bell 103 standard: 2225 Hz mark and 2025 Hz space. The carrier is active between 10 and 510 msec past the second. Each byte of data is encoded as one start bit, 8 data bits and two stop bits. There are ten bytes in each packet, and the last stop bit ends at precisely 500 msec past the second. (1 start bit + 8 data bits + 2 stop

bits) 10 characters = 110 bits. Each bit takes 1/300 of a second (300 baud). So the whole code takes 366.66.. msec. 500-366.66... = 133.33... msec. So graphically, each second looks like this:

000	050	100	150	200	250	300	350	400	450	500	550
^	/	`				^				^	٨
1	2	2				3				4	5

- 1 Ticking noise.
- 2 2225 Hz mark tone for 123.333 msec to allow modems to set up
- 3 Data stream
- 4 2225 Hz mark tone for 10 msec to avoid false overrun of the stop bits
- 5 silence until the end of the second.

The datastream itself consists of ten bytes. There are two possible formats at the moment: One for second 31 and the other for seconds 32 through 39. Each format has 5 bytes of data, then 5 bytes of redundancy. The "A" format redundancy bytes are exactly the same as the data bytes. The "B" format redundancy bytes are exactly inverted (one's complement, NOT, XOR 0xff, etc) from the data bytes. This is how one can tell what sort of frame was received.

Once the data is received and the redundancy bytes are checked, the next thing to do is to swap the least and most significant nibbles in each byte. After doing all of this, the frames look like this:

A frame: 6d dd hh mm ss

ddd is the day of the year. hh:mm:ss is the time UTC. 6 is a constant. Each nibble is a BCD digit.

B frame: xd yy yy tt ab

d is the absolute value of DUT in tenths of a second. yyyy is the gregorian year, tt is the difference between TAI and UTC, a is a flag indicating canadian daylight time (contents of this nibble are undocumented at the moment), b is a serial number (this nibble increments whenever the B frame is changed), and x is a bitwise field:

A sample A frame as received from the modem might look like this: 36 56 21 51 53 36 56 21 51 53

Note that these numbers are in hex. This translates to the 365th day of the year (Dec 31, or Dec 30 in a leap year), 12:15:35 UTC.

A sample B frame as received from the modem might look like this:

19 91 39 72 00 e6 6e c6 8d ff

This translates to a DUT of -.1, year 1993, TAI-UTC=27, serial number 0 and no canadian daylight time.

Date: 11 Aug 1994 01:26:10 GMT

From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!zip.eecs.umich.edu!yeshua.marcam.com!news.kei.com!ssd.intel.com!chnews!scorpion.ch.intel.com!

cmoore@network.ucsd.edu
To: info-hams@ucsd.edu

References <1994Aug10.103830.1@aspen.uml.edu>, <32bm8a\$iu2@news.csus.edu>, <32bot3\$45r@agate.berkeley.edu>.in

Subject: Re: Which code learning method? Why?

In article <32bot3\$45r@agate.berkeley.edu>,
Ken A. Nishimura <kennish@kabuki.EECS.Berkeley.EDU> wrote:

>If you learn code Farnsworth, you'll have a easier time upgrading.

Hi Ken, I have a stupid question. Does anybody actually send Farnsworth-sounding code on the air? I've never heard it on the air and am wondering why learn sounds in a way that will not be encountered in operation?

73, Cecil, KG7BK, OOTC (Not speaking for Intel)

Intel, Corp. 5000 W. Chandler Blvd. Chandler, AZ 85226

End of Info-Hams Digest V94 #908 ***********